

**The Scope of Work for “Comprehensive Annual Maintenance Contract (CAMC) of CNC Axle Turning Lathe (Dept no- LMS-153) for the period of 05 years at Shop-2/Loco/KPA through open tender”:**

Eastern Railway Workshop, Kanchrapara (loco complex) shop-2 /KPA has decided to engage outside agency for Service contract for Annual Maintenance Contract of CNC ATL Dept no-LMS-153 including all spares, Lubrication oil, Hydraulic Oil, Gear Oil and grease except consumable item for the period 5 years through open tender in the GEM portal for the estimated cost of Rs 5481333/-(Rupees Fifty Four Lakh Eighty One Thousand Three Hundred Thirty Three) only and WAO(IC)/KPA has also advised to follow the open tender for service contract.

The scope of work which is to be executed in whole contractual period as given below:-

**Break Down Maintenance:** The Railways also will call to the service engineer/ contractor, in case of an emergency other than the schedule maintenance work. The firm is bound to attend the break down complaint on receipt of either telephonic call, message, written intimation, email or any form of message except holidays if any, there will be no extra charges for the additional visit during AMC.

**Preventive Maintenance:** Preventive maintenance shall preferably be conducted on weekends through mutual agreement with the consignee. Each preventive maintenance schedule normally shall not exceed one day. The total shutdown time for preventive maintenance should be kept as low as possible but not more than 60 hours/month (averaged over the quarter) including time for cleaning, weekly, fortnightly, monthly, quarterly schedules etc. The preventive maintenance regime offered must be aimed at achieving minimum 95% uptime of the plant excluding the plant down time for preventive maintenance schedules.

**Grace Period:** The tenderer shall ensure that in case a failure is reported by a consignee, qualified service engineers visit the site within 2 days from the date of complaint on calendar days' basis. This period of 2 days (including date of complaint) after the failure report shall be treated as grace period, which will not count towards plant down time for upto one failure per quarter and a maximum of 4 failures per annum. In case, the number of failures exceed one during any quarter or four during any year of AMC, grace period for only date of failure will be permissible for such additional failures. Complaints shall be lodged by consignee by fax, SMS, Phone call, email or per bearer at address given by the tenderer. In case preventive maintenance is carried out along with breakdown maintenance schedule; preventive maintenance time will be deducted from breakdown time of the plant.

**Original Software:** Tenderer must supply the original Operating System and original module programme in the event of any failure of the machine operating system.

**Original Spare:** Tenderer must supply original spares in case of replacement of any spares during CAMC of the above machine.

**Desktop:** The tenderer must supply one high-end configuration all in one desktop along with a UPS (Uninterruptible Power Supply) to ensure continuous operation at free of cost. The system should be capable of updating NC/CNC part programming for machining jobs. All necessary drivers and compatibility support for CNC machine interfacing may be provided if required. The firm is responsible for carrying out CNC/PLC programming for new axle introductions & for modifications of existing CNC programs based on updated machining requirements. This ensures reliable machine operation, minimal downtime, and seamless integration of new axle machining programs. This high-end configuration all in one desktop along with a UPS will ensure followings:

- i. CNC Programming for New Axles & Modifications of Existing CNC Programming.
- ii. Seamless CNC Machine Integration.
- iii. Minimized Downtime & Continuous Operation
- iv. Handling Heavy Software & Data Processing
- v. Future-Proofing & Reliability

**Preventive/CAMC schedules are appended below:**

SL No	Items to be Checked	Periodicity	Items Replaced
<b>Mechanical Servicing</b>			
1	Basic Mechanical system and all other lubricated part will be serviced.	Quarterly	As and when required
2	Lubrication system for the slides and ball screws will be serviced.	Quarterly	As and when required
3	Ball screw and nut housing of X-Z axis will be service	Quarterly	As and when required
4	Telescopic guards services and telescopic guard glass to be replaced half yearly basis.	Half Yearly	telescopic guard glass
5	All end limit switches will be checked for operation and serviced	Quarterly	As and when required
6	Checking of turret performance and serviced	Quarterly	As and when required
7	Checking of steady rest performance and serviced.	Quarterly	As and when required
8	Checking of Coolant system performance and serviced.	Quarterly	As and when required
9	Checking of conveyer system performance and serviced	Quarterly	As and when required
10	All the mechanical portion of the hoist crane should be checked and serviced	Quarterly	As and when required
11	Yearly painting of the machine should be performed by firm. Paint color Apple Green Color no:281 to IS :5-1978	Yearly	As and when required
<b>Hydraulic serving</b>			
12	Checking of main hydraulic Pump for satisfactory performance	Quarterly	As and when required
13	Checking leakages in pipe line	Quarterly	As and when required
14	Checking of solenoid vales and pressure switches	Quarterly	As and when required
15	Checking of distribution manifold	Quarterly	As and when required
16	Checking of door slides and locking arrangements	Quarterly	As and when required
17	Checking of chilling unit for main Hydraulic Pump	Quarterly	As and when required
18	Hydraulic oil (Servo 68) levels should be maintained	Quarterly	
<b>Lubrication Servicing</b>			
19	Checking of Lubrication pump for all axis lubrication	Quarterly	As and when required
20	Checking of distribution manifold and metering cartridges	Quarterly	As and when required
21	Checking of Lubrication flow	Quarterly	As and when required
22	Manual lubrication for X & Z axis	Quarterly	As and when required
23	Lubrication Oil (Servo 58) levels should be maintained	Quarterly	
<b>Electrical Servicing</b>			
24	Checking of control Panel & all inside accessories and serviced	Quarterly	As and when required
25	Checking of MCBs Relay, Modules, Contractors RPS units and encoder and serviced	Quarterly	As and when required
26	Checking of Transformers including voltage stabilizer and serviced	Quarterly	As and when required
27	Checking of field connections and serviced	Quarterly	As and when required
28	Checking the cable routing and serviced	Quarterly	As and when required
29	Checking of Air Condition units & chillier unit and serviced	Quarterly	As and when required

SL No	Items to be Checked	Periodicity	Items Replaced
30	Checking of Tube light of inside panel shall be checked and ensured for its proper functioning and serviced	Quarterly	As and when required
31	All limit switch shall be confirmed and replacement if required	Quarterly	As and when required
32	All the electrical portion of the hoist crane should be checked and serviced	Quarterly	As and when required
<b>Servicing of CNC Controller Package</b>			
33	Checking of CNC Card Rack, CRT unit, key board and serviced	Quarterly	As and when required
34	Checking of servo motor and amplifier for X & Z axis and serviced	Quarterly	As and when required
35	Checking of spindle motor and driven system and serviced	Quarterly	As and when required
36	Checking Amplifier of Spindle motor and serviced	Quarterly	As and when required
37	Checking of auto mode and MDI mode of working for all tools with Turret and serviced	Quarterly	As and when required
38	Firm will also responsible for the software which has been installed in the machine. Firm should attend /replace /upgrade the software whenever required for smooth running of the machine operation.	Quarterly	As and when required
39	Part programming of the Job.CNC /PLC programming is to be carried out during introduction of new axle as well as modification of the existing programming. Firms also responsible to supply the part programming	Quarterly	As and when required
<b>During Preventive maintenance schedule Firm should follow the following rules and regulation:</b>			
1.	Firm Engineer will have to visit Eastern Railway workshop once in a quarter for detailed checking of health of machine.		
2.	Firm will carry out detailed health check as per checklist jointly decided by the firm and workshop		
3.	Workshop will also maintain a logbook for monitoring the performance of the machine		
4.	Any spare parts found to be defective /faulty should be brought to the notice of the workshop for replacement / repair without any extra charges including revolving centre & dead centre & chuck		
5.	Repairing of parts /PCB's assemblies during CAMC offered included		
6.	Firm shall have to suggest workshop time to time various up gradation or protection incorporate for good health of the machine so that necessary action can be taken.		
7.	During preventive maintenance calls the firm will involve the workshop engineer so that they can also get familiarized with the m/c.		
8.	During each preventive maintenance call follow up action will be jointly recorded in the checklist and this will be reviewed during the next visit.		
9.	After each preventive maintenance of the machine, Joint Note must be made between Firm's representative and SSE-Shop-2 /Consignee, SSE (Mechanical Maintenance) and SSE (Electrical Maintenance). The joint note must be signed in that quarter only and any delay from the firm's side will not be entertained later.		
10.	The person deputed for the CAMC work of CNC ATL Machine must have police verification and gate pass permission prior and must be clear from any criminal record for deputed to work inside the premises of workshop.		

**SUSARAN TIRU**  
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**Dy. Chief Mechanical Engineer (G)**  
 Eastern Railway workshop/Kanchrapara